National Aeronautics and Space Administration

DECEMBER 2016

SPACE LAUNCH SYSTEM HIGHLIGHTS

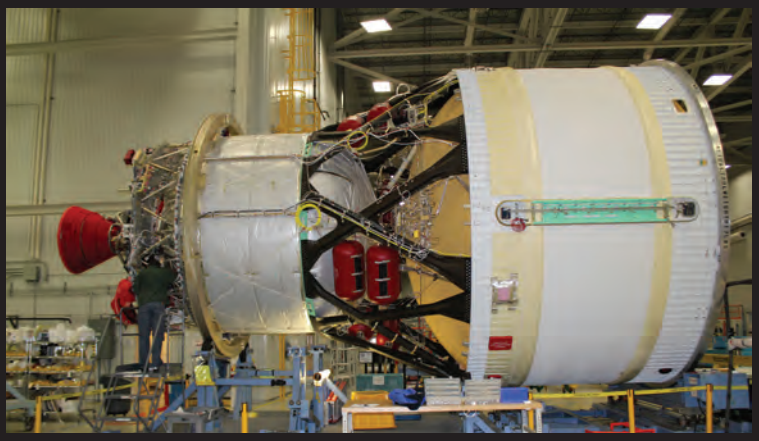
WIND TUNNEL TESTING FOR NEXT GENERATION SLS

www.nasa.gov

WIND TUNNEL TESTING UNDERWAY FOR NEXT, MORE POWERFUL VERSION OF NASA'S SPACE LAUNCH SYSTEM

As engines are fired, software written and hardware welded to prepare for the first flight of SLS, engineers are already running tests in supersonic wind tunnels to develop the next, more powerful version of the launch vehicle. "Aeronautics leads the way in the design of a new rocket," said Jeff Bland, SLS discipline lead engineer for Integrated Vehicle Structures & Environments at NASA's Marshall Space Flight Center in Huntsville, Alabama. "The first leg of any journey for spacecraft launched from Earth is a flight through our atmosphere."

Read the full story here:
bit.ly/2i6ZCOb



MAJOR ASSEMBLY COMPLETE ON SYSTEM THAT WILL PACK A POWERFUL PUSH FOR ORION

The propulsion system that will give the Orion spacecraft the in-space push needed to travel thousands of miles beyond the moon and back has completed major assembly at United Launch Alliance (ULA) in Decatur, Alabama. The Boeing-designed interim cryogenic propulsion stage (ICPS) is a liquid oxygen/liquid hydrogen-based system that will give Orion an extra punch of power on the first, uncrewed flight of the spacecraft with the Space Launch System in late 2018. The first integrated exploration mission will allow NASA to use the lunar vicinity as a proving ground to test systems farther from Earth, and demonstrate Orion can get to a stable orbit in the area of space near the moon in order to support sending humans to deep space, including the Journey to Mars. With major assembly now complete on the flight hardware, the ICPS has several more steps to go, including avionics installation at the ULA-Decatur factory; barge and road transport to the Delta Operating Center at Cape Canaveral, Florida, for avionics and system-level testing; and delivery to NASA in mid-2017.

JOIN US ON THE JOB SITE OF TESTING SLS – IN 360°!

Feel like a part of the team getting ready to test the world's most powerful rocket! This 360-degree time-lapse video gives an inside look at the work going on ahead of major testing for the upper part of the SLS.

Watch the video at: bit.ly/2i7Za1Q

NO SMALL STEPS EPISODE 4: WORKING WITH GRAVITY

The fourth installment of this video series discusses how working with gravity, instead of against it, is the easiest way to get something where we want it to go and how SLS will do this for missions to Mars. Host Stephen Granade explains how rockets deliver spacecraft into Earth orbit, and how that process resembles and differs from a trajectory to Mars.

Watch it here: bit.ly/2hNzvP6

TECHNICIANS PREP SLS BOOSTER STRUCTURES FOR FIRST DEEP-SPACE MISSION

A paint technician with Orbital ATK, prime contractor for the SLS boosters, uses an air gun to apply paint to the booster aft skirt for the rocket inside a support building at Hangar AF at Cape Canaveral Air Force Station. The space shuttle-era aft skirt was inspected and resurfaced, and then primed and painted, for use on the right booster of the SLS rocket for Exploration Mission-1.

BIG 'THANK YOU' TO TEXAS SUPPLIERS

In early December, representatives from NASA, Lockheed Martin, Orbital ATK and Aerojet Rocketdyne visited some of the Texas companies working on SLS and Orion, and thanked employees for their hard work on the next class of exploration vehicles for deep-space missions.

Houston Precision Fasteners provides critical fasteners for use throughout the SLS booster motor. The majority of the fasteners are used on the forward skirt assembly. The small business also supplies thousands of pieces of precision fastener hardware for the Orion spacecraft.

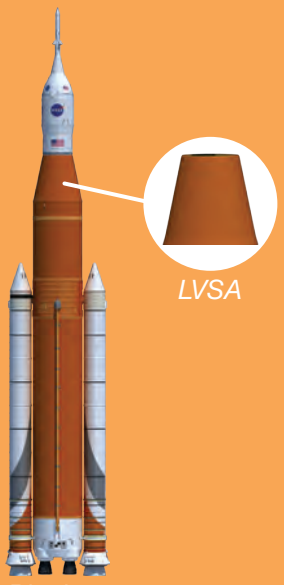
Atec Inc. is a provider of valves for the RL-10 engine, which will be used on the SLS interim cryogenic propulsion stage.

WELDING COMPLETE ON SLS FORWARD SKIRT

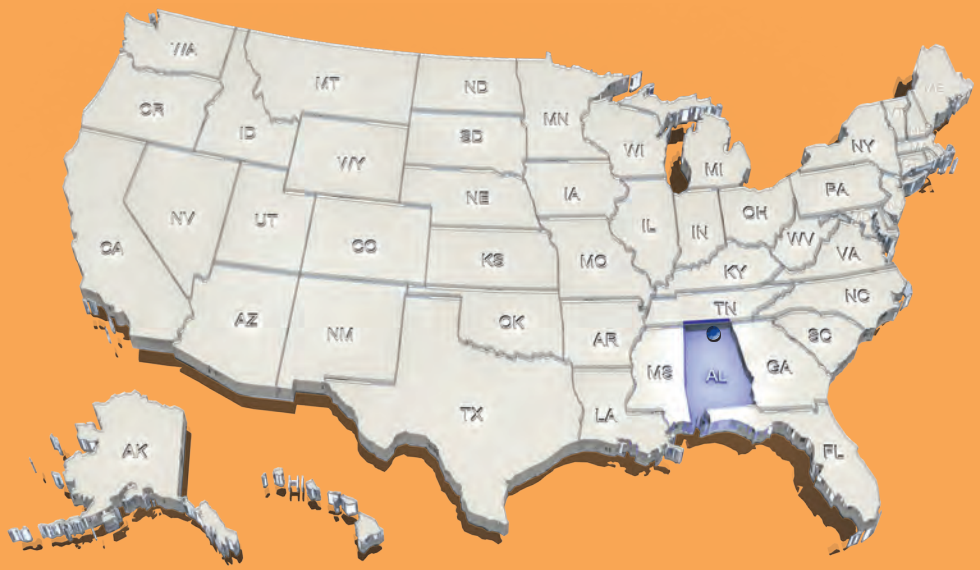
Welding is complete on the SLS forward skirt, right, which will house the flight computers, cameras and avionics – or "brains" of the rocket – on the first integrated mission of SLS and Orion in 2018. The forward skirt is one of the five pieces that make up the core stage of the rocket.

Here's more you need to know on that major element of SLS: bit.ly/2ddk9Ru

SPACEFLIGHT PARTNERS:
KT Engineering



Block 1



LOCATION:
Madison, Alabama

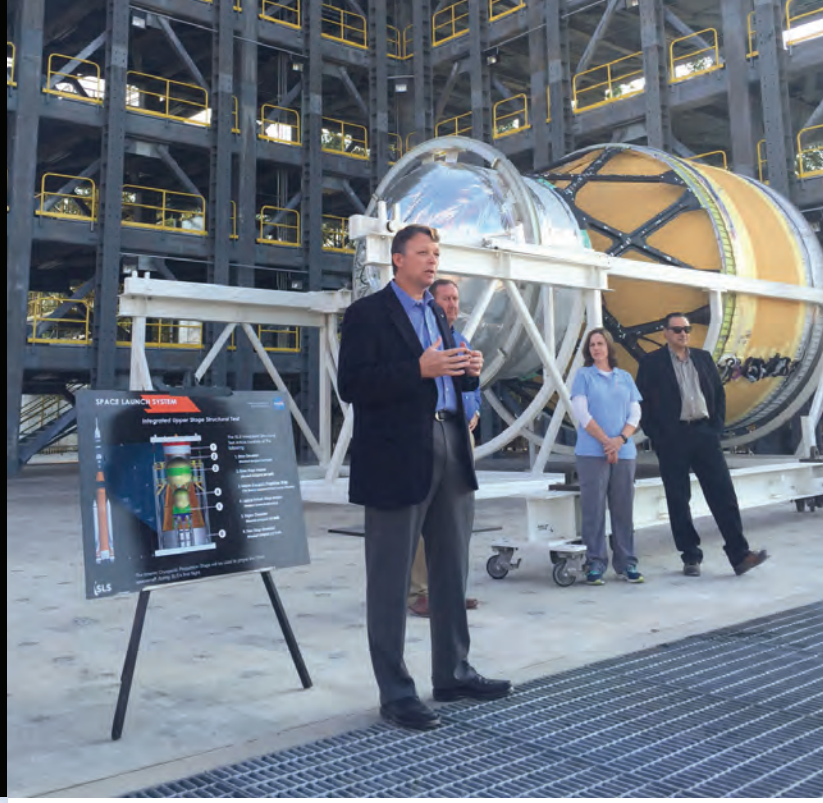
NUMBER OF EMPLOYEES: *10*

WHAT THEY DO FOR SLS:
KT Engineering provides mechanical design and structural analysis support to Teledyne Brown Engineering on SLS launch vehicle stage adapter development.

STEVE CREECH TRACES NASA CAREER SUCCESS BACK TO MISSISSIPPI ROOTS

Steve Creech recently was named manager of the Spacecraft Payload Integration and Evolution (SPIE) Office for the SLS Program. He spends his days overseeing the work happening on hardware for the top portion of the SLS rocket at the Marshall Center, but he points to his hometown of Tupelo, Mississippi, as the place his 26-year engineering career first took root.

Read his story: bit.ly/2ibP009



PREPARING TO PLUG INTO SLS FUEL TANK

A team prepares a robot – the yellow machine attached to the liquid hydrogen tank for the SLS rocket – for friction plug welding at NASA's Michoud Assembly Facility in New Orleans. Friction plug welding is a technique developed by engineers at the Marshall Center that uses a robot to fill holes left after the tank goes through assembly in a larger robotic welder. The liquid hydrogen tank is more than 130 feet long and is the largest part of the rocket's core stage – the backbone of the rocket.

FOLLOW THE PROGRESS OF NASA'S NEW LAUNCH VEHICLE FOR DEEP SPACE:

NASA SLS Rocketology Blog.... blogs.nasa.gov/Rocketology

Twitter.....Twitter.com/NASA_SLS

Facebook..... Facebook.com/NASASLS

COMING UP:

Liquid hydrogen tank proof testing

EM-1 booster center/aft segment cast

Structural loads testing on hardware for top part of SLS